

REMARKS**I. Introduction**

In response to the Office Action dated June 6, 2005, claim 12 has been amended. Claims 1-8, 10-19, and 21-25 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Claim Amendments

Applicants' attorney has made amendments to the claims as indicated above. These amendments were made solely for the purpose of clarifying the language of the claims, and were not required for patentability or to distinguish the claims over the prior art. Specifically, claim 12 has been amended to eliminate a typographical error.

III. Specification Objections

Applicants have amended the abstract and submit that any objections to the abstract are now moot.

IV. Claim Objections*Claim 1*

Page 3 of the Office Action provides that it is unclear how the apparatus of claim 1 includes one client and another client and for the purposes of the examination, the examiner assumed that claim 1 was drawn to a distributed processing system.

Applicant submits that although certain aspects of claim 1 were stated as being unclear, claim 1 was not objected to. Further, Applicants submit that claim 1 is clear in its recitation of the various claim elements. The preamble and content of the claim recites the "one client". In addition, the claims indirectly recite "another client" from which a transient copy of an object is unloaded. Thus, contrary to that asserted in the Office Action, claim 1 is not drawn to a distributed processing system. Instead, multiple clients are involved and the claim directly recites the actions performed by one client and indirectly recites actions performed by another client.

Claim 6

Page 3 of the Office Action rejected claim 6 for reciting: "wherein said modifications to the transient copy of the objects comprises an amendments implemented locally or remotely on said transient copy". However, Applicants submit that the recitation of claim 6 is inconsistent with the prior amendments to the claims. In this regard, the prior amendment under 37 CFR 1.116 which was entered with the filing of the RCE provided for a transient copy of the object (and not objects) and an amendment (and not amendments). The accurate depiction of the amendments previously submitted are reflected in claim 6 as recited above.

Accordingly, Applicants respectfully request withdrawal of the objections to claim 6.

V. Prior Art Rejections

On page (4) of the Office Action, claims 1-8, 10-19, and 21-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shi et al. (Shi), U.S. Patent No. 5,623,659 in view of Straube et al. (Straube), U.S. Patent No. 6,446,077.

The independent claims were rejected as follows:

Claims 1, 12, 23, and 24, Shi discloses:

a database application [Figs 2 and 3] makes modifications, in cache [Fig 2, 24], to a transient copy of said persistent objects [col 4, lines 10-35]

a database thread generates database transaction requests for updating the persistent copy of the object in the central database to reflect said modifications to the transient copy [col 4, lines 10-35]
said database transaction requests are processed, in a database transaction request queue [Fig 3, 103] at a lower priority than said modifications to the transient copy

Shi discloses the essential elements of the claimed invention as noted above and furthermore discloses in Background of the Invention that optimistic concurrency control allows users to checkout objects freely, however, if there are multiple users who wish to update the same object, only one user's update will be accepted, the other updates are aborted [col 1, lines 45-48] but does not disclose wherein when the transient copy of the object in another client is unloaded from the cache of the other client. Straube discloses a propagation stack for keeping track of propagations to perform, the stack being organized in the familiar LIFO method of adding and removing data from the list [col 9, lines 54-58]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Shi based on the teachings of Straube to include wherein when the transient copy of the object in one client is accessed, any previously existing transient copy of the object in another client is unloaded from the cache of the other client for the purpose of maintaining the most recent copy and not aborting the complete transaction as disclosed by Shi. The skilled artisan would have been motivated to improve the invention of Shi per the above such that accessing of a transient copy by users can be expedited while still maintaining data integrity.

Applicant traverses the above rejections for one or more of the following reasons:

(1) Neither Shi nor Straube teach, disclose or suggest generating database transaction requests for updating the persistent copy of the object based on the modifications to the transient copy;

(2) Neither Shi nor Straube teach, disclose or suggest removing a transient copy of the object from the cache of a second client when another transient copy in a first client modifies the transient copy; and

(3) Shi teaches away from unloading a transient copy of an object from the cache when another client is accessing their transient copy of the object; and

Independent claims 1, 12, 23, and 24 are generally directed to updating data in a central database. A persistent copy of an object is located in the central database. A transient copy of the object is located in cache. Modifications are made to the transient copy of the object. To reflect the modifications to the transient copy of the object (i.e., in the persistent copy of the object), a database thread generate database transaction requests. The database transaction requests are processed in a queue but at a lower priority than to the transient copy modifications. In addition, to ensure data integrity, whenever the transient copy of the object in any client is accessed, any transient copies of the object existing in other objects are unloaded from the cache of the other clients.

The cited references do not teach nor suggest these various elements of Applicants' independent claims.

In rejecting the claims, the Office Action first relies on Shi to teach various claim elements. However, the context of Shi must be examined. As stated throughout Shi, different logical portions of a versioned object are locked for exclusive write access by different users. Shi uses multiple different lock modes to accomplish concurrent access by a plurality of users (see col. 1, line 53-col. 2, line 38). In this regard, rather than teaching the unloading of a transient copy from cache, Shi explicitly and expressly teaches the locking of data objects so that there is no need to unload such data from cache. Further, instead of unloading a transient copy, Shi's users "will generally have read access to all portions of the object, whether or not he has all exclusive write lock on any portion of the object" (see col. 2, lines 17-19). Thus, Shi explicitly and expressly teaches that the data would remain in cache. In addition, Shi discloses that all of the various objects with the various clients are updated accordingly. Thus, rather than unloading the data from cache, Shi teaches the data

remaining at the client where it is updated to reflect the changes made by other users. Such a teaching is completely contrary and teaches away from that claimed in the present invention.

In view of the above, Applicants submit that since Shi teaches away from the present invention, it cannot be used independently or in combination with another reference to reject the claims of the present invention. Further, under MPEP §2144.05, "A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997)". Accordingly, since Shi teaches away from the present claims, a *prima facie* case of obviousness cannot be established.

In addition, under MPEP 2145, "The totality of the prior art must be considered, and proceeding contrary to accepted wisdom in the art is evidence of nonobviousness. *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986)". In the prior Office Actions, the Examiner stated "Examiner finds it difficult to understand why a user's copy is deleted. It is unclear why the changes in this particular user's copy are not considered for incorporation in the master copy." Thus, the Examiner admitted that the present teaching was nonobviousness in view of the prior art. Shi does not add any further disclosure with respect to unloading data from cache as claimed. Accordingly, Shi teaches away from the present invention and cannot be used to reject the present claims.

The Office Action acknowledges that Shi fails to teach the unloading of the transient copy of the object in other clients (see page 5 of the Office Action). To teach this element, the Office Action relies on Straube's propagation stack for keeping track of propagations. Applicants admit that Straube teaches a propagation stack for keeping track of propagations using a LIFO method. However, such a teaching is not remotely relevant nor does it have any impact on the claims that provide for unloading a transient copy of an object from cache. Nowhere in Straube or in the portion cited by the Examiner is there even a remote reference or suggestion to unloading a transient copy of an object from cache. In this regard, it is unclear why Straube was used to reject the application at all.

After reciting Straube, the Office Action states that it would have been obvious to modify Shi based on the teachings of Straube to include the unloading of the transient copy from cache. The Office Action then concludes that the motivation exists to improve Shi by accessing a transient copy by users while still maintaining data integrity. However, the Office Action has still failed to

disclose or teach the specifically claimed element of unloading the transient copy from cache when another object accesses their transient copy of the object. The motivation to improve Shi may exist. However, even if Shi is combined with Straube, the combination still completely fails, explicitly and implicitly, to teach, disclose, or suggest the invention as claimed.

Further, consistent with the above description of Shi, even when combined, the references teach away from Applicants' invention. Moreover, the various elements of Applicants' claimed invention together provide operational advantages over Shi and Straube. In addition, Applicants' invention solves problems not recognized by Shi and Straube.

Thus, Applicants submit that independent claims 1, 12, 23, and 24 are allowable over Shi and Straube. Further, dependent claims 2-8, 10, 11, 13-19, 21, 22, and 25 are submitted to be allowable over Shi and Straube in the same manner, because they are dependent on independent claims 1, 12, 23, and 24, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-8, 10, 11, 13-19, 21, 22, and 25 recite additional novel elements not shown by Shi and Straube.

VI. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

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